

CLAIMS

What is claimed is:

1. An apparatus for accommodating a fast change of digital streaming formats or sources in a video server system connected to one or more video display devices over a communications link, comprising:

a video stream controller; and

means associated with said video stream controller for allowing the format or source of a digital video stream to change without breaking the communications link to the video display device.

2. An apparatus as recited in claim 1, wherein said means comprises:

a source control library; and

a streaming library;

wherein said stream controller is connected between said source control library and said streaming library; and

wherein the communications link between an interconnected video display device and the streaming library does not change in response to a video source or video format change.

3. An apparatus as recited in claim 2, wherein the source control library comprises:

a source route selection module; and

a plurality of media sources connected to the source route selection module;

wherein the source route selection module selects which media source provides data to the stream controller.

4. An apparatus as recited in claim 3, wherein said media sources comprise at least two of the following:

an analog video source;

an Ethernet streaming video source; and

a hard disk drive.

5. An apparatus as recited in claim 3, wherein said media sources comprise a plurality of analog video sources, and further comprising:
a plurality of analog video decoders, each analog video decoder connected to a respective analog video source;
an analog source router multiplexer connected to the analog video decoders;
and
a plurality of digital compression encoders connected between the analog source router multiplexer and the source route selection module.

6. An apparatus as recited in claim 3, wherein at least one of said media sources comprises an Ethernet streaming video source, and further comprising:
an Ethernet streaming video interface connected between the Ethernet streaming video source and the source route selection module.

7. An apparatus as recited in claim 3, wherein at least one of said media sources comprises an audio/visual hard disk drive, and further comprising:
a personal video recorder/file playback module connected between the hard disk drive and the source route selection module.

8. An apparatus as recited in claim 1, wherein the stream controller comprises:
a streaming module interface package connected to the source route selection module.

9. An apparatus as recited in claim 8, wherein the stream controller further comprises:
a universal plug and play (UPnP) software stack connected to the streaming module interface package; and
wherein the network display terminal accesses the UPnP software stack via a

network connection.

10. An apparatus as recited in claim 1, wherein the streaming library comprises:

at least one real time streaming protocol/real time transport protocol (RTSP/RTP) streaming module connected to the streaming module interface package.

11. An apparatus as recited in claim 10, wherein the streaming library further comprises:

at least one hypertext transfer protocol (HTTP) streaming module connected to the streaming module interface package.

12. An apparatus as recited in claim 11, wherein the streaming library further comprises:

at least one user datagram protocol (UDP) streaming module connected to the streaming module interface package.

13. An apparatus as recited in claim 12, wherein the network display terminal is connected to at least one of: the RTSP/RTP streaming module, the HTTP streaming module, and the UDP streaming module.

14. An apparatus for accommodating a change of digital streaming formats or sources in a video server system, comprising:

a source control library;

a streaming library; and

a stream controller connected between the source control library and the streaming library;

wherein a connection between a network display terminal and the streaming library does not change in response to a video source or video format change.

15. An apparatus as recited in claim 14, wherein the source control library comprises:

- a source route selection module; and
- a plurality of media sources connected to the source route selection module;

wherein the source route selection module selects which media source provides data to the stream controller.

16. An apparatus as recited in claim 15, wherein said media sources comprise at least two of the following:

- an analog video source;
- an Ethernet streaming video source; and
- an hard disk drive.

17. An apparatus as recited in claim 15, wherein said media sources comprise a plurality of analog video source, and further comprising:

- a plurality of analog video decoders, each analog video decoder connected to a respective analog video source;
- an analog source router multiplexer connected to the analog video decoders;

and

- a plurality of digital compression encoders connected between the analog source router multiplexer and the source route selection module.

18. An apparatus as recited in claim 15, wherein at least one of said media sources comprises an Ethernet streaming video source, and further comprising:

- an Ethernet streaming video interface connected between the Ethernet streaming video source and the source route selection module.

19. An apparatus as recited in claim 15, wherein at least one of said media sources comprises an audio/visual hard disk drive, and further comprising:

- a personal video recorder/file playback module connected between the hard disk drive and the source route selection module.

20. An apparatus as recited in claim 14, wherein the stream controller comprises:

a streaming module interface package connected to the source route selection module.

21. An apparatus as recited in claim 20, wherein the stream controller further comprises:

a universal plug and play (UPnP) software stack connected to the streaming module interface package; and

wherein the network display terminal accesses the UPnP software stack via a network connection.

22. An apparatus as recited in claim 14, wherein the streaming library comprises:

at least one real time streaming protocol/real time transport protocol(RTSP/RTP) streaming module connected to the streaming module interface package.

23. An apparatus as recited in claim 22, wherein the streaming library further comprises:

at least one hypertext transfer protocol (HTTP) streaming module connected to the streaming module interface package.

24. An apparatus as recited in claim 23, wherein the streaming library further comprises:

at least one user datagram protocol (UDP) streaming module connected to the streaming module interface package.

25. An apparatus as recited in claim 24, wherein the network display terminal is connected to at least one of: the RTSP/RTP streaming module, the

HTTP streaming module, and the UDP streaming module.

26. A method for managing video streams provided by a home video server, comprising:

- receiving a request for streaming content from a network display terminal;
- selecting a first stream source for the streaming content;
- establishing a streaming protocol connection with the network display terminal;
- packetizing the streaming content from the first source;
- transmitting packetized streaming content to the network display terminal; and
- maintaining the streaming protocol connection with the network display terminal when a second stream source is selected.

27. A method as in claim 26, further comprising:

- selecting a second source for the streaming content;
- packetizing the streaming content from the second source; and
- transmitting packetized streaming content to the network display terminal over the streaming protocol connection established to transmit the streaming content from the first source.

28. A method as in claim 26, wherein the request for streaming content is received at a stream controller, the stream controller comprising:

- a streaming module interface package; and
- a universal plug and play (UPnP) software stack connected to the streaming module interface package.

29. A method as in claim 28, wherein the request for streaming content comprises a UPnP request that is received at the UPnP software stack.

30. A method as in claim 26, wherein a stream source is selected using a source route selection module, the source route selection module being connected

to a plurality of media sources.

31. A method as in claim 30, wherein the media sources comprise at least two of the following:

- an analog video source;
- an Ethernet streaming video source; and
- a hard disk drive.

32. A method as in claim 26, wherein the streaming protocol connection with the network display terminal is established via a real time streaming protocol/real time transport protocol (RTSP/RTP) streaming module.

33. A method as in claim 26, wherein the streaming protocol connection with the network display terminal is established via a hypertext transfer protocol (HTTP) streaming module.

34. A method as in claim 26, wherein the streaming protocol connection with the network display terminal is established via a user datagram protocol (UDP) streaming module.

35. A home video server system, comprising:

- a home video server;
- at least one network display terminal connected to the home video server;
- means for receiving a request for streaming content from the network display terminal;
- means for selecting a stream source for the streaming content;
- means for establishing a streaming protocol connection with the network display terminal; and
- means for maintaining an established streaming protocol connection with the network display terminal when the stream source or format changes.